



## Terminal Services Commands

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This chapter describes the Cisco IOS XR commands used for setting up physical and virtual terminal connections, managing terminals, and configuring virtual terminal line (vty) pools. It also includes commands for the managing the Craft Panel Interface.

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# absolute-timeout

To set the absolute timeout for line disconnection, use the **absolute-timeout** command in line template configuration mode. To remove the **absolute-timeout** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**absolute-timeout** *minutes*

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**Syntax Description**

*minutes* Absolute timeout interval, in minutes. Range is from 0 to 10000.

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**Command Default**

*minutes*: 1440

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**Command Modes**

Line template configuration

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**Command History**

Release	Modification
Release 7.0.1	This command was introduced.

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**Usage Guidelines**

Use the **absolute-timeout** command to terminate the connection after the specified time has elapsed, regardless of whether the connection is being used at the time of termination. You can specify an absolute-timeout value for each port. The user is notified 20 seconds before the session is terminated.

The following example shows how to set the session timeout value to 2880 minutes (2 days) for the default line template:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# absolute-timeout 2880
```

# access-class

To restrict incoming and outgoing connections using an IPv4 or IPv6 access list, use the **access-class** command in line template configuration mode. To remove the restriction, use the **no** form of this command.

```
access-class list-name {in | out}
```

<b>Syntax Description</b>	<i>list-name</i> IPv4 or IPv6 access list name.				
<b>in</b>	Filters incoming connections.				
<b>out</b>	Filters outgoing connections.				
<b>Command Default</b>	No access class is set.				
<b>Command Modes</b>	Line template configuration				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 7.0.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 7.0.1	This command was introduced.
Release	Modification				
Release 7.0.1	This command was introduced.				

**Usage Guidelines** Use the **access-class** command to restrict incoming or outgoing connections to addresses defined in an access list. Use the **ipv4 access-list** or **ipv6 access-list** command to define an access list by name.



**Note** To restrict access of incoming or outgoing connections over IPv4 and IPv6, the IPv4 access list and IPv6 access list must share the same name.

The following example shows how to specify an access class assigned to outgoing connections for the default line template:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# access-class vtyacl out
```

The following sample output from the **show ipv4 access-lists** command displays the IPv4 access list named vtyacl:

```
RP/0/RP0/CPU0:router# show ipv4 access-lists vtyacl

ipv4 access-list vtyacl
 10 permit ip host 10.32.162.48 any
 20 permit ip host 10.20.49.170 any
 30 permit ip host 10.60.3.5 any
```

The following sample output from the **show ipv6 access-lists** command displays the IPv6 access list name vtyacl:

```
RP/0/RP0/CPU0:router# show ipv6 access-lists vtyacl

ipv6 access-list vtyacl
 10 permit ipv6 host 2001:db8:2222:: any
 20 permit ipv6 host 2001:db8:0:4::2 any
```

# autocommand

To automatically run one or more commands after a user logs in to a vty terminal session, use the **autocommand** command in line default or line template configuration mode. To remove the **autocommand** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**autocommand** *command*

## Syntax Description

*command* Command or command alias to be executed on user login to a vty session.

## Command Default

No default behavior or values

## Command Modes

Line template configuration

Line default configuration

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Use the **autocommand** command to automatically run a command or command alias when a user logs in to a vty session. To run multiple commands, use a command alias for the *command* argument. When the user logs in, the commands included in the alias are run sequentially.



**Note** The **autocommand** command is supported on vty connections only; it is not supported on console or aux line connections. Use this command to automatically run a command after user login.

The following example shows how to use the **autocommand** command to automatically run the **show ip interface brief** command when a user logs in to a default vty session:

```
RP/0/RP0/CPU0:router# configure terminal
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# autocommand show ip interface brief
RP/0/RP0/CPU0:router(config-line)# end

Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]:yes

RP/0/RP0/CPU0:router# exit

<Your 'TELNET' connection has terminated>
```

The following example shows how to disable the feature using the **no** form of the **autocommand** command. In this example, the autocommand for the **show ip interface brief** command is disabled. When the user logs out, and logs back in, the **autocommand** command does not run.

```
RP/0/RP0/CPU0:router# configure terminal
RP/0/RP0/CPU0:router(config)# line default
```

```
RP/0/RP0/CPU0:router(config-line)# no autocommand ?  
  
LINE  Appropriate EXEC command  
  
RP/0/RP0/CPU0:router(config-line)# no autocommand show ip interface brief  
RP/0/RP0/CPU0:router(config-line)# end  
  
Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]:yes  
  
RP/0/RP0/CPU0:router# exit  
  
<Your 'TELNET' connection has terminated>  
  
User Access Verification  
  
Username: lab  
Password:  
RP/0/RP0/CPU0:router#
```

# banner exec

To create a message that is displayed when an EXEC process is created (an EXEC banner), use the **banner exec** command in global configuration mode or XR config mode. To delete the EXEC banner, use the **no** form of this command.

**banner exec** *delimiter message delimiter*

<b>Syntax Description</b>	<i>delimiter</i> Delimiting character is (c).
	<i>message</i> Message text. Text may include tokens in the form \$( <i>token</i> ) in the message text. Tokens are replaced with the corresponding configuration variable. Tokens are described in <i>banner exec tokens</i> .

**Command Default** No EXEC banner is displayed.

**Command Modes** Global Configuration mode  
XR Config mode

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** Use the **banner exec** command to specify a message that is displayed when an EXEC process is created (a line is activated or an incoming connection is made to a vty). Follow this command with one or more blank spaces and the delimiting character (c). After entering one or more lines of text, terminate the message with the delimiting character (c).

When a user connects to a router, the message-of-the-day (MOTD) banner appears first, followed by the login banner and prompts. After the user logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

Use tokens in the form \$( *token* ) in the message text to customize the banner. Tokens display current configuration variables, such as the router hostname and IP address.

The tokens are described in this table.

**Table 1: banner exec Tokens**

Token	Information Displayed in the Banner
\$(hostname)	Displays the hostname for the router.
\$(domain)	Displays the domain name for the router.
\$(line)	Displays the vty or tty (asynchronous) line number.

The following example shows how to set an EXEC banner that uses tokens:



```
RP/0/RP0/CPU0:router(config)# banner exec c
```

```
Enter TEXT message. End with the character 'c'.
```

```
THIS IS AN EXEC BANNER
```

```
c
```

# banner incoming

To create a banner that is displayed when there is an incoming connection to a terminal line from a host on the network, use the **banner incoming** command in global configuration mode or XR config mode. To delete the incoming connection banner, use the **no** form of this command.

**banner incoming** *delimiter message delimiter*

## Syntax Description

*delimiter* Delimiting character is (c).

*message* Message text. You can include tokens in the form \$( *token* ) in the message text. Tokens are replaced with the corresponding configuration variable. Tokens are described in *banner incoming tokens*.

## Command Default

No incoming banner is displayed.

## Command Modes

Global Configuration mode  
XR Config mode

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Follow the **banner incoming** command with one or more blank spaces and the delimiting character (c). After entering one or more lines of text, terminate the message with the second occurrence of the delimiting character (c).

An *incoming connection* is one initiated from the network side of the router. Incoming connections are also called reverse Telnet sessions. These sessions can display message-of-the-day (MOTD) banners and incoming banners, but they do not display EXEC banners.

When a user connects to a router, the MOTD banner (if configured) appears first, followed by the login banner and prompts. After the user logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

Incoming banners cannot be suppressed. If you do not want the incoming banner to appear, you must delete it with the **no banner incoming** command.

To customize the banner, use tokens in the form \$(*token*) in the message text. Tokens display current variables, such as the router hostname and IP address.

This table describes the tokens.

**Table 2: banner incoming Tokens**

Token	Information Displayed in the Banner
\$(hostname)	Displays the hostname for the router.
\$(domain)	Displays the domain name for the router.

Token	Information Displayed in the Banner
<b>\$(line)</b>	Displays the vty or tty (asynchronous) line number.

The following example shows how to create an incoming connection banner:

```
RP/0/RP0/CPU0:router(config)# banner incoming c
```

```
Enter TEXT message. End with the character `c`  
THIS IS AN INCOMING BANNER.  
c
```

# banner login

To create a customized banner that is displayed before the username and password login prompts, use the **banner login** command in global configuration mode or XR config mode. To disable the login banner, use **no** form of this command.

**banner login** *delimiter message delimiter*

## Syntax Description

*delimiter* Delimiting character is (c).

*message* Message text. You can include tokens in the form \$( *token* ) in the message text. Tokens are replaced with the corresponding configuration variable. Tokens are described in *banner login tokens*.

## Command Default

No login banner is displayed.

## Command Modes

Global Configuration mode  
XR Config mode

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Follow the **banner login** command with one or more blank spaces and the delimiting character (c). Then enter one or more lines of text, terminating the message with the second occurrence of the delimiting character (c).

When a user connects to the router, the message-of-the-day (MOTD) banner (if configured) appears first, followed by the login banner and prompts. After the user successfully logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

To customize the banner, use tokens in the form \$( *token* ) in the message text. Tokens display current configuration variables, such as the router hostname and IP address.

Tokens are described in the this table.

**Table 3: banner login Tokens**

Token	Information Displayed in the Banner
\$(hostname)	Displays the hostname for the router.
\$(domain)	Displays the domain name for the router.
\$(line)	Displays the vty or tty (asynchronous) line number.

The following example shows how to set a login banner:

```
RP/0/RP0/CPU0:router(config)# banner login c
```

```
Enter TEXT message. End with the character 'c'.  
THIS IS A LOGIN BANNER  
c
```

# banner motd

To create a message-of-the-day (MOTD) banner, use the **banner motd** command in global configuration mode or XR config mode. To delete the MOTD banner, use the **no** form of this command.

**banner motd** *delimiter message delimiter*

## Syntax Description

*delimiter* Delimiting character is (c).

*message* Message text. You can include tokens in the form \$( *token* ) in the message text. Tokens are replaced with the corresponding configuration variable.

## Command Default

No MOTD banner is displayed.

## Command Modes

Global Configuration mode

XR Config mode

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Follow this command with one or more blank spaces and the delimiting character (c). Then enter one or more lines of text, terminating the message with the second occurrence of the delimiting character (c).

This MOTD banner is displayed to all terminals connected and is useful for sending messages that affect all users (such as impending system shutdowns). Use the **no banner motd** command to disable the MOTD banner on a line.

When a user connects to the router, the MOTD banner (if configured) appears first, followed by the login banner and prompts. After the user successfully logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

To customize the banner, use tokens in the form \$(token) in the message text. Tokens display current configuration variables, such as the router hostname and IP address.

Tokens are described in this table.

**Table 4: banner motd Tokens**

Token	Information Displayed in the Banner
\$(hostname)	Displays the hostname for the router.
\$(domain)	Displays the domain name for the router.
\$(line)	Displays the vty or tty (asynchronous) line number.

The following example shows how to configure an MOTD banner with a token:

```
RP/0/RP0/CPU0:router(config)# banner motd c
```

```
Enter TEXT message. End with the character 'c'.
```

```
Notice: all routers in $(domain) will be upgraded beginning April 20  
c
```

# banner prompt-timeout

To create a banner that is displayed when there is a login authentication timeout, use the **banner prompt-timeout** command in global configuration mode or XR config mode. To delete the prompt timeout banner, use the **no** form of this command.

**banner prompt-timeout** *delimiter message delimiter*

## Syntax Description

*delimiter* Delimiting character is (c).

*message* Message text. You can include tokens in the form  $\$(token)$  in the message text. Tokens are replaced with the corresponding configuration variable.

## Command Default

No banner is displayed when there is a login authentication timeout.

## Command Modes

Global Configuration mode

XR Config mode

## Command History

Release	Modification
Release 6.1.2	This command was introduced.

## Usage Guidelines

Follow this command with one or more blank spaces and the delimiting character (c). Then enter one or more lines of text, terminating the message with the second occurrence of the delimiting character (c).

This prompt-timeout banner is displayed when there is a login authentication timeout at the username and password prompt.

The following example shows how to configure a prompt-timeout banner:

```
RP/0/RP0/CPU0:router(config)# banner prompt-timeout c
Enter TEXT message. End with the character 'c'.
THIS IS A PROMPT TIMEOUT BANNER
c
```



# clear line

To clear an auxiliary or console line to an idle state, use the **clear line** command in EXEC mode.

```
clear line {aux | console} location node-id
```

<b>Syntax Description</b>	<b>aux</b>	Clears the auxiliary line.	
	<b>console</b>	Clears the console line.	
	<b>location</b> <i>node-id</i>	Specifies the location of a route processor (RP) where the auxiliary or console line to be cleared resides. The <i>node-id</i> argument is entered in the <i>rack / slot / module</i> notation.	
<b>Command Default</b>	None		
<b>Command Modes</b>	EXEC		
<b>Command History</b>	<b>Release</b>	<b>Modification</b>	
	Release 7.0.1	This command was introduced.	
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.		

The following example shows how to clear the console line, putting it in an idle state:

```
RP/0/RP0/CPU0:router# clear line console location 0/RP1/CPU0
```

# clear line vty

To clear a virtual terminal line (vty) to an idle state, use the **clear line vty** command in EXEC mode.

**clear line vty** *line-number*

<b>Syntax Description</b>	<i>line-number</i> Line number in the range from 0 to 99.
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<b>Command Default</b>	No default behavior or values
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<b>Command Modes</b>	EXEC
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>show users</b> command to determine the origin of the connection and which lines to clear. When a line is cleared to an idle state, the user on the other end of the connection receives notice that the connection was closed by a foreign host.
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The following example shows how to reset vty 3 to the idle state:

```
RP/0/RP0/CPU0:router# clear line vty 3
```

# disconnect

To disconnect a network connection, use the **disconnect** command in EXEC mode.

**disconnect** [*connection-number* *network-name*]

## Syntax Description

*connection-number* (Optional) Number of the line of the active network connection to be disconnected. Range is from 1 to 20.

*network-name* (Optional) Name of the active network connection to be disconnected.

## Command Modes

EXEC

## Command Default

Disconnects the existing network connection if no arguments are provided.

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Do not disconnect a line to end a session. Instead, log off the host before ending the session to clear the connection. If you cannot log out of an active session, disconnect the line.

The following example shows how to disconnect from a device (in this example “User1”) to return to the router:

```
User1% disconnect
Connection closed by remote host

RP/0/RP0/CPU0:router#
```

# disconnect-character

To define a character to disconnect a session, use the **disconnect-character** command in line template configuration mode. To remove the **disconnect-character** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**disconnect-character** [*numbercharacter*]

## Syntax Description

*number* (Optional) ASCII decimal equivalent of the disconnect character. Range is from 0 through 255.

*character* (Optional) Disconnect character.

## Command Default

No disconnect character is defined.

## Command Modes

Line template configuration

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

The break character is represented by 0; null cannot be represented.

The following example shows how to set the disconnect character for the default line template to the Esc character, which is the ASCII decimal equivalent 27:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# disconnect-character 27
```

# escape-character

To define a character to escape a session, use the **escape-character** command in line template configuration mode. To remove the **escape-character** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**escape-character** {*breaknumbercharacter* | **default** | **none**}

## Syntax Description

<b>break</b>	Sets the escape character to the Break key.
<i>number</i>	ASCII decimal equivalent of the escape character. Range is from 0 through 255.
<i>character</i>	Escape character.
<b>default</b>	Specifies the default escape character (^X).
<b>none</b>	Disables the escape function.

## Command Default

The default escape character is ^X.

## Command Modes

Line template configuration

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Use the **escape-character** command to define an escape character sequence that is different from the default. Use the escape character to exit from an existing connection and return to the EXEC prompt.

The default escape key sequence is Ctrl-Shift-6, X (^X). The **escape-character** command with the **default** keyword sets the escape character to the Break key (the default setting for the Break key is Ctrl-C).

The following example shows how to set the escape character for the default line template to Ctrl-P, which is the ASCII decimal character 16:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# escape-character 16
```

# exec-timeout

To set the interval that the EXEC command interpreter waits until user input is detected, use the **exec-timeout** command in the appropriate line configuration mode. To remove the **exec-timeout** command from the running configuration and restore the system to its default condition, use the **no** form of this command.

**exec-timeout** *minutes seconds*

## Syntax Description

*minutes* Minutes for the wait interval. Range is from 0 to 35791.

*seconds* Seconds for the wait interval. Range is from 0 to 2147483.

## Command Default

*minutes*: 10

*seconds*: 0

## Command Modes

Line console configuration

Line default configuration

Line template configuration

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

If no input is detected during the interval, the EXEC facility resumes the current connection. If no connections exist, the EXEC facility returns the terminal to the idle state and disconnects the incoming session. To disable the EXEC timeout function so that the EXEC session never timeouts, enter the following command:

```
exec-timeout 00
```

The following example shows how to set the timeout interval for the console line template to 60 minutes, 0 seconds:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# exec-timeout 60 0
```

# flowcontrol hardware

To configure the hardware flow control setting for physical terminal connections, use the **flowcontrol hardware** command in line console configuration mode. To remove the attribute from the configuration file and restore the system to its default condition, use the **no** form of this command.

```
flowcontrol hardware {in | out | none}
no flowcontrol hardware {in | out | none}
```

## Syntax Description

<b>in</b>	Specifies inbound flow control.
<b>out</b>	Specifies outbound flow control.
<b>none</b>	Specifies no flow control.

## Command Default

None

## Command Modes

Line console configuration

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Use the **flowcontrol hardware** command to set the flow control attribute for physical line connections. Physical line connections use either the console or auxiliary line template.

The following example shows how to restrict the hardware flow control to inbound for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# flowcontrol hardware in
```

# lcd alarm-category

To set the alarm-category (will get displayed on the LCD panel), use the **lcd alarm-category** command in the appropriate mode. To delete the set category, use the **no** form of the command.

**lcd alarm-category** *number*

**no lcd alarm-category** *number*

---

## Syntax Description

*number* Number to identify the alarm category. This lists indicates the numbers for classification:

- 1 for critical
  - 2 for critical and major
  - 3 for critical, major and minor
  - 0 for other
- 

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## Command Default

None

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## Command Modes

Global configuration

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## Command History

Release	Modification
Release 7.0.1	This command was introduced.

---



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## Usage Guidelines

None

## Example

This example show how to use the **lcd alarm-category** command:

```
RP/0/RP0/CPU0:router (config) # lcd alarm-category 2
```



# lcd message

To set administrative messages (will get displayed on the LCD panel), use the **lcd message** command in the appropriate mode. To delete the set message, use the **no** form of the command.

**lcd message** *message*

---

<b>Syntax Description</b>	<i>message</i> Administrative message for the operator. Limit is 512 alphanumeric characters.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Global configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

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<b>Usage Guidelines</b>	None
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## Example

This example show how to use the **lcd message** command:

```
RP/0/RP0/CPU0:router (config) # lcd message abcd
```

# lcd name

To set the rack-name (will get displayed on the LCD panel), use the **lcd name** command in the appropriate mode. To delete the set name, use the **no** form of the command.

**lcd name** *rack-name location*

Syntax Description	
	<i>rack-name</i> The rack-name. Limit is 15 alphanumeric characters.
	<i>location</i> The location of the rack (rack-id).

Command Default	None
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Command Modes	Global configuration
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Command History	Release	Modification
	Release 7.0.1	This command was introduced.

Usage Guidelines	None
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## Example

This example show how to use the **lcd name** command:

```
RP/0/RP0/CPU0:router (config) # lcd name lc1
```

# length

To set the number of lines that display at one time on the screen, use the **length** command in line template configuration mode. To remove the **length** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**length** *lines*

---

## Syntax Description

*lines* Number of lines that displays on a screen. Range is from 0 through 512. 0 specifies no pausing. The default is 24.

---

## Command Default

*lines* : 24

## Command Modes

Line template configuration

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## Command History

Release	Modification
Release 7.0.1	This command was introduced.

---

## Usage Guidelines

Use the **length** command to modify the default length setting for the specified line template. The length setting determines when the screen pauses during the display of multiple-screen output. Specifying a value of 0 for the lines argument prevents the router from pausing between screens of output.

The following example shows how to set the length of the default line template to 33 lines:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# length 33
```

# line

To specify the console, the default, or a user-defined line template and enter line template configuration mode, use the **line** command in global configuration mode.

**line** {**console** | **default** | **template** *template-name*}

Syntax Description		
	<b>console</b>	Specifies the line template for the console line.
	<b>default</b>	Specifies the default line template.
	<b>template</b> <i>template-name</i>	Specifies a user-defined line template to be applied to a vty pool.

**Command Default** None

**Command Modes** XR Config

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** Use the **line** command to specify a line template type and enter into line template configuration mode. Line templates are a collection of attributes used to configure and manage physical terminal line connections (the console and auxiliary ports) and vty connections. The following templates are available in Cisco IOS XR software:

- Default line template—The default line template that applies to a physical and virtual terminal lines.
- Console line template—The line template that applies to the console line.
- User-defined line templates—User-defined line templates that can be applied to a range of virtual terminal lines.

The following example shows how to enter line template configuration mode to allow configuration changes to be made to the default line template:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)#
```

# parity

To set the parity bit for physical terminal connections, use the **parity** command in line console configuration mode. To specify no parity, use the **no** form of this command.

**parity** {**even** | **none** | **odd**}

---

## Syntax Description

**even** Specifies even parity.

**none** Specifies no parity.

**odd** Specifies odd parity.

---

## Command Default

No parity is set.

## Command Modes

Line console configuration

---

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

---



---

## Usage Guidelines

Communication protocols provided by devices such as terminals and modems often require a specific parity bit setting.

Use the **parity** command for setting the parity attribute for physical terminal connections. Physical terminal connections use either the console or auxiliary line template.

The following example shows how to set the line parity configuration to even for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# parity even
```

# resume

To switch to another active Secure Shell (SSH) or Telnet session, use the **resume** command in EXEC mode.

**resume** [*connection*]

## Syntax Description

*connection* (Optional) Name or number of the active network connection; the default is the most recent connection. Number range is from 1 to 20.

## Command Default

The most recent connection.

## Command Modes

XR EXEC

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

SSH and Telnet sessions can be established to another router or server.

When the network session is being established and without disconnecting the network session, you can resume the router console session by typing a special sequence of characters as shown. After switching back to the router console, the network connection can be resumed by specifying the number of the connection or the name of the connection.

You can have several concurrent sessions open and switch back and forth between them. The number of sessions that can be open is defined using the **session-limit** command.

You can switch between sessions by escaping one session and resuming a previously opened session, as follows:

1. Escape from the current session by pressing the escape sequence (Ctrl Shift-6, x [^^X]) to return to the EXEC prompt.
2. Enter the **show sessions** command to list the open sessions. All open sessions associated with the current terminal line are displayed.
3. Enter the **resume** command and the session number to make the connection.

You can also resume the previous session by pressing the **Return** key.

The ^^X and commands are available for all supported connection protocols.

The following example shows how to escape from one connection and resume another. You can omit the connection name and simply enter the connection number to resume that connection.

```
host1% ^^X
RP/0/RP0/CPU0:router# resume 1

blg_router#
```

# send

To send messages to one or all terminal lines, use the **send** command in EXEC mode.

```
send {*line-number | aux 0 | console 0 | vtty number}
```

## Syntax Description

<b>*</b>	Sends a message to all tty lines.
<i>line-number</i>	Line number to which the message is sent. A number from 0 to 301.
<b>aux 0</b>	Sends a message to the auxiliary line.
<b>console 0</b>	Sends a message to the console line.
<b>vtty number</b>	Sends a message to a virtual terminal line (vtty). Range is 0 to 99.

## Command Default

None

## Command Modes

XR EXEC

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

The system prompts for the message, which can be up to 500 characters long. Enter **Ctrl-Z** to end the message. Enter **Ctrl-C** to abort this command.

The following example shows how to send a message to all lines:

```
RP/0/RP0/CPU0:router# send *

Enter message, end with CTRL/Z; abort with CTRL/C:
The system will be shut down in 10 minutes for repairs.^Z
Send message? [confirm]
RP/0/RP0/CPU0:router#

***
***
*** Message from tty to all terminals:
***
The system will be shut down in 10 minutes for repairs.
```

## session-limit

To set the maximum number of outgoing terminal sessions from the current terminal, use the **session-limit** command in the appropriate line configuration mode. To remove any specified session limit, use the **no** form of this command.

**session-limit** *connections*  
**no session-limit**

Syntax Description	
	<i>connections</i> Maximum number of outgoing connections. Range is from 0 through 20.

Command Default	
	<i>connections</i> : 6

Command Modes	
	Line console configuration
	Line default configuration
	Line template configuration

Command History	Release	Modification
	Release 6.1.2	This command was introduced.

Usage Guidelines	
	No specific guidelines impact the use of this command.

The following example shows how to limit the number of active outgoing connections for the default line template to eight:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# session-limit 8
```



## session-timeout

To set the timeout interval for all outgoing connections from the current terminal, use the **session-timeout** command in the appropriate line configuration mode. To remove the **session-timeout** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**session-timeout** *minutes* [**output**]

### Syntax Description

*minutes* Timeout interval, in minutes. Range is 0 to 35791. The default is 10.

**output** (Optional) Specifies that when traffic is sent to an asynchronous line from the router (within the specified interval), the connection is retained.

### Command Default

*minutes* : 10

### Command Modes

Line console configuration

Line default configuration

Line template configuration

### Command History

Release	Modification
Release 7.0.1	This command was introduced.

### Usage Guidelines

Use the **session-timeout** command to set the interval that Cisco IOS XR software waits for traffic before closing the connection to a remote device and returning the terminal to an idle state. If the **output** keyword is not specified, the session timeout interval is based solely on detected input from the user. If the keyword is specified, the interval is based on input and output traffic.

The following example shows how to set the session timeout value for the default line template to 120 minutes (2 hours):

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# session-timeout 120
```

## show cli submode-exit status

To display the status of terminal submode-exit configuration, use **show cli submode-exit status** command in EXEC mode.

### **show cli submode-exit status**

**Syntax Description** This command has no keywords or arguments.

**Command Default** No default behavior or values.

**Command Modes** EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

The following block shows the output from the **show cli submode-exit status** command:

```
RP/0/RP0/CPU0:router #show cli submode-exit status
Global submode exit feature is disabled.
Session submode exit feature is disabled.
```

# show diag lcd-interface

To display details about the LCD interface (of the craft panel) , use the **show diag lcd-interface** command in the appropriate mode.

## show diag lcd-interface

**Syntax Description** This command has no keywords or arguments.

**Command Default** None

**Command Modes** EXEC

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

## Example

This example shows how to use the **show diag lcd-interface**

```
RP/0/RP0/CPU0:router # show diag location 0/CI0
```

```
Diag Information For : 0/CI0
```

```
0/CI0-IDPROM Info
  Controller Family      : 0084
  Controller Type       : 0932
  PID                   : NCS4K-CRAFT
  Version Identifier    : V00
  UDI Description       : NCS 4000 Craft Panel
  CLEI Code             : NOCLEICODE
  ECI Number            : 11223344
  Top Assy. Part Number : 800-41609-01
  Top Assy. Revision    : 12
  PCB Serial Number     : SAL1818RL2G
  PCA Number            : 73-14799-03
```

# show line

To display the parameters of terminal lines, use the **show line** command in EXEC mode.

**show line** [**aux location** *node-id* | **console location** *node-id* | **vtty number**]

Syntax Description	aux	(Optional) Displays the terminal line parameters for the auxiliary line.
	<b>location</b> <i>node-id</i>	(Optional) Specifies the location for the route processor (RP) on which the auxiliary or console port resides. The <i>node-id</i> argument is entered in the <i>rack/slot</i> notation.
	<b>console</b>	(Optional) Displays the terminal line parameters for the console line.
	<b>vtty number</b>	(Optional) Specifies a virtual terminal line (vtty) number. Range is from 0 through 99.
<b>Command Default</b>	None	
<b>Command Modes</b>	XR EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

The following example shows sample output from the **show line** command. The asterisk (\*) indicates the current terminal session.

```
RP/0/RP0/CPU0:router# show line

      Tty          Speed    Modem  Uses   Noise  Overruns      Acc I/O
      aux0_0_0      9600      -      -      -      0/0          -/-
*   con0_0_0      9600      -      -      -      0/0          -/-
      vty0           0/0      -      -      -      0/0          -/-
      vty1           0/0      -      -      -      0/0          -/-
      vty2           0/0      -      -      -      0/0          -/-
      vty3           0/0      -      -      -      0/0          -/-
      vty4           0/0      -      -      -      0/0          -/-
      vty100         0/0      -      -      -      0/0          -/-
      vty101         0/0      -      -      -      0/0          -/-
      vty102         0/0      -      -      -      0/0          -/-
      vty103         0/0      -      -      -      0/0          -/-
      vty104         0/0      -      -      -      0/0          -/-
      vty105         0/0      -      -      -      0/0          -/-
```

Table 5: show line Field Descriptions

Field	Description
Tty	Available ttys and vtys.
Speed	Baud rate that the inbound serial connection is using, in bps.
Modem	Not implemented.
Uses	Not implemented.
Noise	Not implemented.
Overruns	Hardware Universal Asynchronous Receiver/Transmitter (UART) overruns or software buffer overflows, both defined as the number of overruns or overflows that have occurred on the specified line since the system was restarted. Hardware overruns are buffer overruns; the UART chip has received bits from the software faster than it can process them. A software overflow occurs when the software has received bits from the hardware faster than it can process them.
Acc I/O	Not implemented.

The following example shows sample output from the **show line** command with the console line specified:

```
RP/0/RP0/CPU0:router# show line console location 0/rp0/cpu0

      Tty           Speed      Overruns           Acc I/O
con0/RP0/CPU0     9600           0/0                -/-

Line con0_RP0_CPU0, Location "0/RP0/CPU0", Type "Console"
Length: 24 lines, Width: 80 columns
Baud rate (TX/RX) is 9600, 1 parity, 2 stopbits, 8 databits
Template: console
Capabilities: Timestamp Disabled
Allowed transports are none.
```

Table 6: show line location Field Descriptions

Field	Description
Tty	Unique identifier of the tty; it contains the type of tty and, for physical ttys, it indicates the physical location of the tty.
Speed	Baud rate that the inbound serial connection is using in bps.
Overruns	Hardware UART overruns or software buffer overflows, both defined as the number of overruns or overflows that have occurred on the specified line since the system was restarted. Hardware overruns are buffer overruns; the UART chip has received bits from the software faster than it can process them. A software overflow occurs when the software has received bits from the hardware faster than it can process them.
Acc I/O	Not implemented.

Field	Description
Line	Unique identifier of the TTY. This field displays the type of TTY and the physical location of physical TTYs.
Location	Location of the line.
Type	Line type.
Length	Length of the terminal or screen display, in rows.
Width	Width of the terminal or screen display, in columns.
Baud rate (TX/RX)	Transmit rate/receive rate of the line, in bps.
parity	Parity bits value used for physical terminal connections.
stopbits	Stop bits value used for physical terminal connections.
databits	Data bits value used for physical terminal connections.
Template	Line template being sourced by the particular connection.
Config	Configuration applied to the tty. This field indicates the allowed incoming transports that can be used to access the router from this tty.
Allowed transports are	Incoming transport protocols that can be used by this tty to access the router.

# show sessions

To display information about suspended Secure Shell (SSH) and Telnet connections launched from the terminal session, use the **show sessions** command in EXEC mode.

## show sessions

**Syntax Description** This command has no keywords or arguments.

**Command Default** None

**Command Modes** XR EXEC

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** Use the **show sessions** command to display the hostname, remote connection service used by the router to access the host, idle time, and connection name.

The following example shows sample output from the **show sessions** command:

```
RP/0/RP0/CPU0:router# show sessions

Conn Host          Address           Service Idle Conn Name
*  1 10.26.25.40     10.26.25.40     telnet   15 10.26.25.40
```

The asterisk (\*) indicates the current terminal session.

**Table 7: show sessions Field Descriptions**

Field	Description
Conn	Identifier for the connection used for resuming and disconnecting suspended sessions. An asterisk (*) indicates the current terminal session.
Host	Remote host to which the router is connected. This field displays either the IP address or hostname of the remote host. If the IP address of the remote host is mapped to the hostname (that is, if Domain Name System [DNS] services are enabled) and the session is initiated with the hostname, the output for this field displays the hostname of the host rather than the IP address of the host.
Address	IP address of the remote host.
Service	Remote connection service used.
Idle	Interval (in seconds) since data was last sent on the line.
Conn Name	Equivalent to the "Host" field in Cisco IOS XR software.

# show terminal

To obtain information about the terminal configuration attribute settings for the current terminal line, use the **show terminal** command in EXEC mode.

## show terminal

**Syntax Description** This command has no keywords or arguments.

**Command Default** None

**Command Modes** XR EXEC

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

This example shows sample output from the **show terminal** command:

```
RP/0/RP0/CPU0:router# show terminal

Line vty0, Location "10.56.249.67", Type "VTY"
Length: 24 lines, Width: 80 columns
Baud rate (TX/RX) is 0, 0 parity, 0 stopbits, 0 databits
Template: default
Capabilities: Timestamp Disabled
Allowed transports are telnet ssh.
```

**Table 8: show terminal Field Descriptions**

Field	Description
Line	Line that is currently being used.
Location	Location of the terminal accessing the router.
Type	Type of line.
Length	Length of the terminal or screen display, in rows.
Width	Width of the terminal or screen display, in columns.
Baud rate (TX/RX)	Transmit or receive rate of the line, in bps.
parity	Parity bits value used for physical terminal connections.
stopbits	Stop bits value used for physical terminal connections.
databits	Data bits value used for physical terminal connections.



Field	Description
Template	Line template being sourced by the particular connection.
Config	Configuration applied to the tty. This field indicates the allowed incoming transports that can be used to access the router from this tty.
Allowed transports are	Incoming transport protocols that can be used by this tty to access the router.

# show users

To display information about the active lines on the router, use the **show users** command in EXEC mode or System Admin EXEC mode.

**show users**

**Syntax Description** This command has no keywords or arguments.

**Command Default** None

**Command Modes** System Admin EXEC  
XR EXEC

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** Use the **show users** command to display the line number, connection name, idle time, hosts, and terminal location. An asterisk (\*) indicates the current terminal session.



**Note** To display all user groups and task IDs associated with the currently logged-in user, use the **show user** command in EXEC mode. See the *Authentication, Authorization, and Accounting Commands on Cisco IOS XR Software* module in *System Security Command Reference for Cisco NCS 5500 Series Routers and Cisco NCS 540 and NCS 560 Series Routers*.

The following example shows sample output identifying an active vty terminal session:

```
RP/0/RP0/CPU0:router# show users

  Line          User           Service  Conns   Idle           Location
  con0_RP0_CPU0 cisco          hardware  0      18:33:48
  vty0          cisco          telnet    0      00:30:36      10.33.54.132
  * vty1        cisco          telnet    0      00:00:00      10.33.54.132
```

**Table 9: show users Command Output Field Descriptions**

Field	Description
Line	All current connections. An asterisk (*) indicates the active connection.
User	Username of the user logged into the line.
Service	Physical or remote login service used.
Conns	Number of outgoing connections.

Field	Description
Idle	Interval (in hours:minutes:seconds) since last keystroke.
Location	IP address of remote login host. For local (physical) terminal connections, this field is blank.

# stopbits

To set the stop bits used for physical terminal connections, use the **stopbits** command in line console configuration mode. To restore the default, use the **no** form of this command.

**stopbits** {1 | 2}  
**no stopbits**

---

## Syntax Description

- 1 Specifies one stop bit.
  - 2 Specifies two stop bits. This is the default.
- 

---

## Command Default

Two stop bits.

---

## Command Modes

Line console configuration

---

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

---



---

## Usage Guidelines

Use the **stopbits** command to set the data bits attributes for physical terminal connections. Physical terminal connections use either the console or auxiliary terminal templates.

Communication protocols provided by devices such as terminals and modems often require a specific stop-bit setting.




---

**Note** The number of stop bits configured on the router and a terminal server should be same. The default number of stop bits on the router is two stop-bits.

---

This example shows how to change the default from two stop bits to one for the console line template:

```
RP/0/RP0/CPU0:router (config) # line console
RP/0/RP0/CPU0:router (config-line) # stopbits 1
```

# terminal cli submode-exit

To enable or disable submode-exit on interactive configuration sessions per VTY, use **terminal cli submode-exit** command in EXEC mode.

**terminal cli submode-exit**

<b>Syntax Description</b>	<b>enable</b> Enables submode-exit on interactive configuration sessions per VTY.
	<b>disable</b> Disables submode-exit on interactive configuration sessions per VTY.

**Command Default** No default behavior or values.

**Command Modes** EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

**Usage Guidelines** You can control **submode-exit** feature behavior while parsing Cisco IOS-XR configuration selectively for every VTY session using this command because, global configuration takes precedence over the per-session configuration.

```
RP/0/RP0/CPU0:router #terminal cli submode-exit ?
  disable  Disable submode-exit behavior for this config session
  enable   Enable submode-exit behavior for this config session

RP/0/RP0/CPU0:router #terminal cli submode-exit enable
WARNING: submode-exit enable is already configured at GLOBAL level.This takes precedence
over per-session settings.

RP/0/RP0/CPU0:router #terminal cli submode-exit disable
WARNING: submode-exit enable is already configured at GLOBAL level.This takes precedence
over per-session settings.
```

# terminal exec prompt

To specify prompt attributes for the current terminal session, use the **terminal exec prompt** command in the appropriate mode.

```
terminal exec prompt {no-timestamp | timestamp}
```

---

**Syntax Description**

**no-timestamp** Disables the time-stamp printing before each command.

**timestamp** Enables the time-stamp printing before each command.

---



---

**Command Default** None

---

**Command Modes** XR EXEC

---

**Command History**

Release	Modification
Release 7.0.1	This command was introduced.

---



---

**Usage Guidelines**

Use the **terminal exec prompt** command with the **timestamp** keyword to show the time-stamp display after each command is entered. Use the **terminal exec** command with the **no-timestamp** keyword to disable the time-stamp display.




---

**Note** The **terminal** commands are active for the current terminal session only. To apply a setting to all sessions, use the **line** commands.

---

This example shows how to enable the time-stamp prompt. When enabled, the date and time are displayed after each command. In this example, the **show version** command is entered, and the date and time is displayed.

The following example shows how to disable the time-stamp prompt:

```
RP/0/RP0/CPU0:router# terminal exec prompt no-timestamp
```

# terminal exec utility pager

To configure the terminal page display options, use the **terminal exec utility pager** command in the appropriate mode.

**terminal exec utility pager** {less | more | none}

Syntax Description	
<b>less</b>	Specifies to use unix-like "less" bidirectional paging for the terminal display.
<b>more</b>	Specifies to use unix-like "more" unidirectional paging for the terminal display.
<b>none</b>	Specifies that the display is not paginated.

**Command Default** No pagination is configured by default.

**Command Modes** EXEC  
XR EXEC

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** Use the **terminal exec utility pager** command with the **more** keyword to scroll forward through command display one screen at a time. "--More--" is displayed at the end of each screen. Press the Space key to advance one screen. Press the Enter key to advance one line. Press the Esc key to exit the command display.

This example shows how to limit command display to one screen at a time such that you can move forward through the display:

```
RP/0/RP0/CPU0:router#terminal exec utility pager more
```

# terminal length

To set the number of lines that display at one time on the screen for the current terminal session, use the **terminal length** command in EXEC mode.

**terminal length** *lines*

<b>Syntax Description</b>	<i>lines</i> Number of lines that display on a screen. Range is from 0 through 512.
---------------------------	---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	XR EXEC
----------------------	---------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>terminal length</b> command to set the terminal length value for only the current terminal session and not save it to the running configuration. Exiting from the terminal session returns the terminal length value to the value configured with the <b>length</b> command.
-------------------------	---

Specifying a value of 0 for the *lines* argument prevents the router from pausing between screens of output.



<b>Note</b>	The <b>terminal</b> commands are active for the current terminal session only. To apply a setting to all sessions, use the <b>line</b> commands.
-------------	--

This example shows how to set the length for the current terminal session to 120 lines:

```
RP/0/RP0/CPU0:router# terminal length 120
```



# terminal width

To set the width of the display terminal for the current terminal session, use the **terminal width** command in EXEC mode.

**terminal width** *characters*

---

<b>Syntax Description</b>	<i>characters</i> Number of characters to display on a screen. Range is from 0 to 512.
---------------------------	--

---

---

<b>Command Default</b>	None
------------------------	------

---

---

<b>Command Modes</b>	XR EXEC
----------------------	---------

---

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 7.0.1	This command was introduced.

---

---

**Usage Guidelines** Use the **terminal width** command to set the terminal width value for only the current terminal session and not save it to the running configuration. Exiting from the terminal session returns the terminal width value to the value configured with the **width** (display) command.

The following example shows how to set the terminal width for the current terminal session to 120 characters:

```
RP/0/RP0/CPU0:router# terminal width 120
```

# timestamp disable

To disable time-stamp recording at the top of each command output, use the **timestamp disable** command in the appropriate line configuration mode. To reenables time-stamp recording if disabled, use the **no** form of this command.

## timestamp disable

### Syntax Description

This command has no keywords or arguments.

### Command Default

Time-stamp recording at the top of each command output is enabled.

### Command Modes

Line console configuration

Line default configuration

Line template configuration

### Command History

Release	Modification
Release 7.0.1	This command was introduced.

### Usage Guidelines

By default, the time stamp is displayed at the top of any command output. The time stamp records the time at which the command was issued. You can use the **snmp-server view** command to disable this setting so that the time stamp does not appear at the top of the command output. This setting applies to all command outputs on any terminal line to which the current line template applies.

This example shows how to disable time-stamp recording for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# timestamp disable
```

# transport input

To define the transport protocols that can be used to access the router, use the **transport input** command in the appropriate line configuration mode. To change or remove the protocol, use the **no** form of this command.

**transport input** {all | none | ssh | telnet}

Syntax Description	
<b>all</b>	Specifies the Secure Shell (SSH) and Telnet protocols.
<b>none</b>	Specifies that the router rejects incoming SSH and Telnet transport protocol connections.
<b>ssh</b>	Specifies the SSH transport protocol.
<b>telnet</b>	Specifies the Telnet transport protocol.

**Command Default** All protocols are allowed on the line.

**Command Modes** Line console configuration  
Line default configuration  
Line template configuration

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** To be accepted, incoming network connections to an asynchronous port (terminal line) must use a transport protocol specified with the **transport input** command. This command can be useful in limiting the acceptable transport protocols to include or exclude those used by different types of users, or to restrict a line to secure connections (SSH connections).

This example shows how to set the transport input setting for the default line template to SSH connections:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# transport input ssh
```

## transport output

To specify the transport protocols that can be used for outgoing connections from a line, use the **transport output** command in the appropriate line configuration mode. To change or remove the protocol, use the **no** form of this command.

**transport output** {**all** | **none** | **ssh** | **telnet**}

### Syntax Description

<b>all</b>	Specifies the Secure Shell (SSH) and Telnet transport protocols.
<b>none</b>	Specifies that the router rejects outgoing SSH and Telnet transport protocol connections.
<b>ssh</b>	Specifies the SSH transport protocol.
<b>telnet</b>	Specifies the Telnet transport protocol.

### Command Default

All protocols are allowed on the line.

### Command Modes

Line console configuration  
Line default configuration  
Line template configuration

### Command History

Release	Modification
Release 7.0.1	This command was introduced.

### Usage Guidelines

Any settings made with the **transport output** command override settings made with the **transport preferred** command.

This example shows how to set the default line template to prevent any outgoing transport protocol connections:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# transport output none
```

# transport preferred

To specify the default outgoing transport protocol to be used for initiating network connections, use the **transport preferred** command in the appropriate line configuration mode. To change or remove the protocol, use the **no** form of this command.

**transport preferred** {none | ssh | telnet}

## Syntax Description

<b>none</b>	Disables the feature.
<b>ssh</b>	Specifies the Secure Shell (SSH) transport protocol.
<b>telnet</b>	Specifies the Telnet transport protocol.

## Command Default

No transport protocol is set as the default outgoing protocol.

## Command Modes

Line console configuration  
Line default configuration  
Line template configuration

## Command History

Release	Modification
Release 7.0.1	This command was introduced.

## Usage Guidelines

Use the **transport preferred** command to provide a default transport protocol to use when initiating outgoing connections. The preferred outgoing transport protocol specified with the **transport preferred** command enables you to initiate an outgoing connection without explicitly specifying the transport protocol.

Cisco IOS XR software assumes that any unrecognized command is a hostname and the software attempts a connection. When the protocol is set to **none**, the system ignores unrecognized commands entered at the EXEC prompt, and does not attempt a connection.

The default setting, the same as using the **transport preferred** command with the **none** keyword, prevents errant connection attempts.

The following example shows how to set the preferred transport setting for the default line template to SSH:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# transport preferred ssh
```

# vty-pool

To create or modify a virtual terminal line (vty) pool, use the **vty-pool** command in global configuration mode or XR config mode. To delete a vty pool, use the **no** form of this command.

**vty-pool** {**default** | **eem***pool-name*} *first-vty last-vty* [**line-template** {**default***template-name*}]

Syntax	Description
<b>default</b>	Specifies the default vty pool.
<b>eem</b>	Specifies the embedded event manager vty pool.
<i>pool-name</i>	User-defined vty pool.
<i>first-vty</i>	First vty line in the pool. <ul style="list-style-type: none"> <li>• For the default vty pool, you must specify 0 for the first vty line.</li> <li>• For a user-defined vty pool, the range is 5 to 99.</li> <li>• For the embedded event manager vty pool, you must specify 100 for the first vty line.</li> </ul>
<i>last-vty</i>	Last vty line in the pool. <ul style="list-style-type: none"> <li>• The default vty pool must contain at least five vtys. Range is 4 to 99.</li> <li>• For a user-defined vty pool, the range is 5 to 99.</li> <li>• The embedded event manager vty pool must contain at least six vtys. Range is 105 to 199.</li> </ul>
<b>line-template</b>	(Optional) Specifies the terminal template to be used in the configuration of virtual terminals in the vty pool.
<b>default</b>	Specifies that the vty pool should reference the default template.
<i>template-name</i>	User-defined template to be applied to the vtys in the vty pool.

**Command Default** **default** *vty-pool* : 5 vtys (vty 0 through 4) referencing the default line template.  
**eem** *vty pool* : 6 vtys (vty 100 through 105) referencing the default line template.

**Command Modes** Global Configuration mode  
 XR Config mode

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** When creating or modifying vty pools, follow these usage guidelines:

- Before creating or modifying the vty pools, enable the Telnet server using the **telnet server** command in global configuration mode.

- The vty range for the default vty pool must start at vty 0 and must contain a minimum of five vtys.
- The vty range from 0 through 99 can reference the default vty pool.
- The vty range from 5 through 99 can reference a user-defined vty pool.
- The vty range from 100 is reserved for the embedded event manager vty pool.
- The vty range for embedded event manager vty pools must start at vty 100 and must contain a minimum of six vtys.
- A vty can be a member of only one vty pool. A vty pool configuration fails if the vty pool includes a vty that is already in another pool.

If you attempt to remove an active vty from the active vty pool when configuring a vty pool, the configuration for that vty pool fails.

This example shows how to configure a user-defined vty pool (test1) that contains vtys 10 through 14 and references the user-defined line template test2:

```
RP/0/RP0/CPU0:router(config)# vty-pool test1 10 14 line-template test2
```

## width (display)

To set the width of the display terminal, use the **width** command in the appropriate line configuration mode. To remove the **width** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

**width** *characters*

---

### Syntax Description

*characters* Number of characters to display on a screen. Range is from 0 to 512.

---

### Command Default

*characters* : 80

### Command Modes

Line console configuration

Line default configuration

Line template configuration

---

### Command History

Release	Modification
Release 7.0.1	This command was introduced.

---

### Usage Guidelines

Use the **width** command to modify the default width setting for the specified line template.

This example shows how to set the terminal width for the default line template to 99 characters:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# width 99
```



# cli whitespace completion

To enable completion of a command when you type the space key, use the **cli whitespace completion** command in the appropriate line configuration mode. To disable whitespace completion, use the **no** form of this command.

**cli whitespace completion**  
**no cli whitespace completion**

**Syntax Description** This command has no keywords or arguments.

**Command Default** Whitespace completion is disabled.

**Command Modes** Line console configuration  
 Line default configuration  
 Line template configuration

Command History	Release	Modification
	Release 7.0.1	This command was introduced.

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **cli whitespace completion** command to complete the next word of the command syntax if you type the space key before completing the word. If more than one option is valid, all options are displayed for you to choose one.

Task ID	Task ID	Operations
	tty-access	read, write

The following example shows how to enable whitespace completion:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# cli whitespace completion
```

Related Commands	Command	Description
	<a href="#">cli interactive syntax check</a>	Enables interactive syntax checking.

